

WHAT IS CLAIMED IS:

1. A low temperature sinterable dielectric ceramic composition which comprises a major composition represented by
5 the general formula: $x\{\alpha \text{BaO}, (1-\alpha)\text{SrO}\}-y\{\text{SiO}_2\}-z\{(1-\beta)\text{ZrO}_2,$
 $\beta \text{Al}_2\text{O}_3\}$ (wherein x, y and z are weight percentages; $x+y+z=100$,
 $55 \leq x \leq 75$, $10 \leq y \leq 35$, and $5 \leq z \leq 30$, α and β are moles;
10 $0.4 \leq \alpha \leq 0.8$, and $0.01 \leq \beta \leq 0.07$) and 2 to 10 parts by weight of
the major composition.

2. The composition as set forth in claim 1, wherein x is
15 60 to 65% by weight, y is 20 to 25% by weight, and z is 10 to
20% by weight.

3. The composition as set forth in claim 1, wherein the
20 Zn-B-silicate glass composition comprises 15 to 25% by weight
of SiO_2 , 20 to 30% by weight of B_2O_3 , and 40 to 50% by weight of
 ZnO .

4. The composition as set forth in claim 3, wherein the
25 Zn-B-silicate glass composition further comprises 7% by weight
or less of at least one selected from alkaline metals such as
Li, K and Na and 5% by weight or less of Al_2O_3 .

5. The composition as set forth claim 1, wherein the content of Zn-B-silicate glass composition is 4 to 8 parts by weight based on 100 parts by weight of the major composition.

5 6. A multilayer ceramic chip capacitor comprising a plurality of dielectric ceramic layers, internal electrodes arrayed inside the dielectric ceramic layers, and outer electrodes electrically connected to the internal electrodes, characterized in that the dielectric ceramic layer is a sintered body of the dielectric ceramic composition which comprises a major composition represented by the general formula: $x\{\alpha \text{BaO}, (1-\alpha)\text{SrO}\}-y\{\text{SiO}_2\}-z\{(1-\beta)\text{ZrO}_2, \beta \text{Al}_2\text{O}_3\}$ (wherein x, y and z are weight percentages; $x+y+z=100$, $55 \leq x \leq 75$, $10 \leq y \leq 35$, and $5 \leq z \leq 30$, α and β are moles; $0.4 \leq \alpha \leq 0.8$, and $0.01 \leq \beta \leq 0.07$) and 2 to 10 parts by weight of a Zn-B-silicate glass composition, per 100 parts by weight of the major composition, and the internal electrode is made of a conductive base metal material.

20 7. The capacitor as set forth in claim 6, wherein x is 60 to 65% by weight, y is 20 to 25% by weight, and z is 10 to 20% by weight.

25 8. The capacitor as set forth in claim 6, wherein the Zn-B-silicate glass composition comprises 15 to 25% by weight

of SiO_2 , 20 to 30% by weight of B_2O_3 , and 40 to 50% by weight of ZnO .

9. The capacitor as set forth in claim 6, wherein the
5 Zn-B-silicate glass composition further comprises 7% by weight
or less of at least one selected from alkaline metals such as
Li, K and Na and 5% by weight or less of Al_2O_3 .

10. The capacitor as set forth in claim 6, wherein the
content of Zn-B-silicate glass composition is 4 to 8 parts by
weight based on 100 parts by weight of the major composition.

11. The capacitor as set forth in claim 6, wherein the
dielectric ceramic layer comprises a crystallized phase of
15 some glass composition after sintered at 800 to 1,000°C.

12. A ceramic electronic device comprising a multilayer
ceramic circuit board and at least one electronic elements
which are mounted on the multilayer ceramic circuit board,
20 characterized in that the multilayer ceramic circuit board
comprises a plurality of dielectric ceramic layers, internal
electrodes arrayed inside the dielectric ceramic layers, and
outer electrodes electrically connected to the internal
electrodes, the dielectric ceramic layer is a sintered body of
25 the dielectric ceramic composition which comprises a major

composition represented by the general formula: $x\{\alpha \text{BaO}, (1-\alpha)\text{SrO}\}-y\{\text{SiO}_2\}-z\{(1-\beta)\text{ZrO}_2, \beta \text{Al}_2\text{O}_3\}$ (wherein x, y and z are weight percentages; $x+y+z=100$, $55 \leq x \leq 75$, $10 \leq y \leq 35$, and $5 \leq z \leq 30$, α and β are moles; $0.4 \leq \alpha \leq 0.8$, and $0.01 \leq \beta \leq 0.07$) and 2 to 10 parts by weight of a Zn-B-silicate glass composition, per 100 parts by weight of the major composition, and the internal electrode is made of a conductive base metal material.

13. The electronic device as set forth in claim 12,
10 wherein x is 60 to 65% by weight, y is 20 to 25% by weight, and
z is 10 to 20% by weight.

14. The electronic device as set forth in claim 12,
wherein the Zn-B-silicate glass composition comprises 15 to 25%
15 by weight of SiO_2 , 20 to 30% by weight of B_2O_3 , and 40 to 50% by
weight of ZnO .

15. The electronic device as set forth in claim 12,
wherein the Zn-B-silicate glass composition further comprises
20 7% by weight or less of at least one selected from alkaline
metals such as Li, K and Na and 5% by weight or less of Al_2O_3 .

16. The electronic device as set forth in claim 12,
wherein the content of Zn-B-silicate glass composition is 4 to
25 8 parts by weight based on 100 parts by weight of the major

composition.

17. The electronic device as set forth in claim 12,
wherein the dielectric ceramic layer comprises a crystallized
5 phase of some glass composition after sintered at 800 to
1,000°C..